



ATTACHMENT A

REMARKS

The interview held with Examiner Boddie and Supervisory Examiner Awad on November 16, 2006, is gratefully acknowledged. The courtesy and cooperative spirit shown by the Examiners to applicant, his son and applicant's representative is much appreciated. The Examiners agreed during the interview that "the addition of limitations requiring that each of the physical control details be capable of movement, and that a plurality of positions capable of being sensed for each physical control detail, would overcome the currently cited art." Claim 1 has been amended to include these limitations and method claim 54 has been amended to track claim 1. (Independent claim 25 has been canceled in order to expedite the prosecution although applicant reserves the right to seek protection for the subject matter of this claim in a continuing application.)

Briefly considering claim 1, claim 1, as amended, recites that the plurality of physical control details are "capable of movement between a plurality of positions" and that the electro-optical sensing system is "capable of sensing the plurality of positions of each of the plurality of physical control details" and "senses a current position of at least one of said plurality of said physical control details." Claim 1 also recites that a computer determines, "from the current position of the at least one of said physical control details sensed by the electro-optical sensing means," inputs to control at least one function of the vehicle. As indicated above, independent claim 54, which is basically a method counterpart of claim 1, has been amended to more closely track claim 1 and to include recitations similar to those just discussed.

Turning briefly to the references cited in the rejection of the previous claims, the Fujimoto patent relates to rear projection display screen system including an electro-optical sensing means located behind the screen. The Fujimoto patent is specifically concerned with touch sensing and, as admitted in the last Office Action, does not disclose a plurality of physical control details mounted in front of the screen nor a sensing system for sensing the position of the physical control details. With respect to Yasutake, element 1515, which is being read as "a physical detail mounted in front of the screen," is a semi-transparent cylinder, and element 1505 which is being read as a

screen is actually an "enclosure." CCD camera 1520 senses areas of the cylinder touched by the fingers of a user, these areas appearing "black" to the CCD camera so as to be "readily distinguished from untouched areas which is eliminated by ambient light" (see lines 54-57 of column 11). Cylinder 1515 does not move. Thus, Yasutake is essentially a finger touch sensing system, and, it is respectfully submitted, does not disclose, inter alia, a plurality of physical control details capable of movement between a plurality of positions nor sensing the current position of at least one of a plurality of physical control details as recited in claims 1 and 54. Regarding the Jaeger patent, while this patent discloses sensing of the position of a control knob, this sensing takes place in front of the screen and there is no disclosure in Jaeger of, inter alia, a rear projection display screen nor an electro-optical sensing means located behind the screen. With respect to the Ames patent, although this patent was not specifically discussed during the interview, Ames clearly does not make up the deficiencies of the other patents as a reference against the claims presented.

As indicated above, claim 25 has been canceled and many of the claims that were formerly dependent on claim 25 have been made dependent on claim 1. A number of the claims have been amended and new dependent claims 60-63 have been added which are based on other dependent claims. A corresponding set of dependent claims, claims 64-100, depend from amended independent claim 54.

Turning to the formal matters raised in the previous Office Action, it is noted that claim 1 has been amended to overcome the claim objection and the rejection thereof under 35 USC 112, claim 35 has been canceled and claim 57 has also been canceled.

Applicant has made an earnest attempt to place this application in condition for allowance based on the discussions at the interview. Thus, if the Examiner finds that there are any remaining problems standing in the way of allowance of this application, the Examiner is respectfully urged to telephone the undersigned so that these problems can be addressed and overcome.

Allowance of the application in its present form is respectfully solicited.

END REMARKS



ATTACHMENT B

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A reconfigurable instrument panel for a vehicle, said panel comprising:

a vehicle instrument panel display including a rear projection display screen;
a plurality of physical control details capable of movement between a plurality of positions and mounted in front of said screen;

an electro-optical sensing system, located behind said screen ~~to sense the~~ and capable of sensing the plurality of positions of each of said plurality of physical control details, for sensing a current position of at least one of said plurality of physical control details; and

a computer, connected to said electro-optical sensing means, ~~to control said projector and~~ determine, from the current position of the at least one of said physical control detail positions sensed by the electro-optical sensing means, inputs to control at least one function of the vehicle.

2. (Canceled)

3. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 1 wherein said computer controls said display as a result of data inputted to said computer from an external source.

4. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 1 wherein said electro-optical sensing system is comprised by a TV camera.

5. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein said electro-optical sensing system is comprised by an optical sensor incorporated into ~~the~~a projector for the rear projection display.
6. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein said computer additionally controls a desired function.
7. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein at least one of said physical control details ~~is~~comprises a knob.
8. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein absolute position of said at least one physical control detail is determined.
9. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 further including sensing of touch position on said screen.
10. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 9 wherein said touch sensing is also achieved electro-optically.
11. (Canceled)
12. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein a datum on said at least one physical control detail located on the users side of said screen is sensed.
13. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein a datum is sensed on a member related to the current position of said at least one physical control detail ~~position~~ is located on the projector side of said screen.

14. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein force feedback is provided to the user as a result of sensing the current position of said sensed~~at least one physical~~ control detail or touch position.
15. (Canceled)
16. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein said screen incorporates at least one relief feature.
17. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 16 wherein said relief feature does not unduly disrupt images projected on said screen.
18. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein at least one of said plurality of physical control detail~~is~~details comprises a transparent portion.
19. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein at least one of said physical control detail~~has a~~details includes an opening through which said screen may be viewed.
20. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein at least one of said physical control details is~~comprises one of~~ a slider, switch or and a dial.
21. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein ~~said~~further comprising projection means is~~of~~ a flying spot scanning type.
22. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 1 wherein ~~said~~further comprising projection means is~~of~~ a image modulating type ~~such as DLP or LCOS.~~

23. (Currently Amended) An instrument panel according to claim 1 wherein said screen ~~incorporates~~ plurality of physical control details comprises two knobs spaced horizontally in front of said screen.

24. (Currently Amended) An instrument panel according to claim 23 wherein a first displayed image on said screen corresponds to a radio configured around said two knobs, and said ~~first radio~~ image is ~~later~~ capable of being reconfigured to a further image corresponding to another function.

25.-26. (Canceled)

27. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 251 wherein the ~~vehicle~~ instrument panel comprises a center stack and wherein the screen of said display is located in the center stack and is of a size occupying a substantial portion of the center stack.

28. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 251 wherein said screen is curvilinear.

29. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 251 wherein said screen is of an irregular non-standard geometrical shape.

30. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 251 wherein said display screen has an area of at least ninety square inches.

31. (Currently Amended) ~~Apparatus~~ An instrument panel according to claim 251 wherein said display screen is located in the center stack of said vehicle and extends toward the steering wheel of said vehicle.

32. (Currently Amended) ~~Apparatus~~ An instrument panel according to Claim 251 wherein said display screen comprises a plastic screen.

33. (Currently Amended) Apparatus An instrument panel according to claim 251 wherein video images are displayed on an upper portion of said display screen so as to be easily seen by the driver of said vehicle.

34.-35. (Canceled)

36. (Currently Amended) Apparatus An instrument panel according to claim 251 wherein said display screen is easily interchanged with a further display screen.

37.-39. (Canceled)

40. (Currently Amended) Apparatus An instrument panel according to claim 251 wherein data displayed ~~data~~ on said display screen is comprised of labels and other data relating to the function of at least ~~one or more~~ of said plurality of physical control details.

41. (Currently Amended) Apparatus An instrument panel according to claim 33 wherein a video image is provided on the screen which can be touched at a desired location to acknowledge or confirm data presented.

42.-44. (Canceled)

45. (Currently Amended) Apparatus An instrument panel according to claim 251 wherein said computer is further used to process data from other electro-optical systems within the vehicle.

46. (Currently Amended) Apparatus An instrument panel according to claim 599 wherein data to be acted on by touch sensing is projected on said screen under control of said computer.

47-53. (Canceled)

54. (Currently Amended) A method for controlling at least one function of a vehicle, said method comprising:

using an electro-optical sensing means for sensing thea current position of at least one of a plurality of physical control ~~detail~~details capable of movement between a plurality of positions and located in front of a rear projection screen of a reconfigurable instrument panel display for the vehicle, wherein the electro-optical sensing means is capable of sensing the positions of each of said plurality of physical control details and is located behind the screen, and said display is controlled by a computer; and

using the computer in processing data from said electro-optical sensing means; ~~and said computer~~ to determine the current position of the at least one of the plurality of physical control ~~detail~~details and in controlling at least one function of the vehicle based on the ~~sensed~~current position of the at least one of the plurality of physical control details determined by the computer.

55.-57. (Canceled)

58. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 251 wherein at least a portion of said screen is non-flat.

59. (Currently Amended) ~~Apparatus~~An instrument panel according to claim 251 further comprising touch sensing means for sensing xy touch position of a finger of a user on at least a portion of said display screen.

60. (New) An instrument panel according to claim 1 wherein said electro-optical sensing system further senses touch position on said display screen.

61. (New) An instrument panel according to claim 1 wherein at least one of said physical control details comprises a switch.

62. (New) An instrument panel according to claim 1 wherein said display screen comprises part of a display system capable of providing, on said display screen, different reconfigurable images associated with the plurality of physical control details.
63. (New) An instrument panel according to claim 62 wherein said images include at least two of an audio image, a climate control image, and a navigational guidance image.
64. (New) A method according to claim 54 wherein said computer controls said display as a result of data inputted to said computer from an external source.
65. (New) A method according to claim 54 wherein said electro-optical sensing system is comprised by a TV camera.
66. (New) A method according to claim 54 wherein said electro-optical sensing system is comprised by an optical sensor incorporated into a projector for the rear projection display.
67. (New) A method according to claim 54 wherein said computer additionally controls a desired function.
68. (New) A method according to claim 54 wherein at least one of said physical control details comprises a knob.
69. (New) A method according to claim 54 wherein absolute position of said at least one physical control detail is determined.
70. (New) A method according to claim 54 further including sensing of touch position on said screen.

71. (New) A method according to claim 54 wherein said touch sensing is also achieved electro-optically.
72. (New) A method according to claim 54 wherein a datum on said at least one physical control detail located on the users side of said display screen is sensed.
73. (New) A method according to claim 54 wherein a datum is sensed on a member related to the current position of said at least one physical control detail is located on the projector side of said display screen.
74. (New) A method according to claim 54 wherein force feedback is provided to the user as a result of sensing the current position of said at least one physical control detail.
75. (New) A method according to claim 54 wherein said display screen incorporates at least one relief feature.
76. (New) A method according to claim 54 wherein said relief feature does not unduly disrupt images projected on said display screen.
77. (New) A method according to claim 54 wherein said at least one physical control detail comprises a transparent portion.
78. (New) A method according to claim 54 wherein said at least one physical control detail includes an opening through which said display screen may be viewed.
79. (New) A method according to claim 54 wherein at least one of said physical control details comprises one of a slider and a dial.
80. (New) A method according to claim 54 further comprising projection means of a flying spot scanning type.

81. (New) A method according to claim 54 further comprising projection means of a image modulating type.

82. (New) A method according to claim 54 wherein said plurality of physical control details comprises two knobs spaced horizontally in front of said display screen.

83. (New) A method according to claim 54 wherein a first displayed image on said display screen corresponds to a radio configured around said two knobs, and said first image is capable of being reconfigured to a further image corresponding to another function.

84. (New) A method according to claim 54 wherein the instrument panel comprises a center stack and wherein the display screen of said display is located in the center stack and is of a size occupying a substantial portion of the center stack.

85. (New) A method according to claim 54 wherein said display screen is curvilinear.

86. (New) A method according to claim 54 wherein said display screen has an area of at least ninety square inches.

87. (New) A method according to claim 54 wherein said display screen is located in the center stack of said vehicle and extends toward the steering wheel of said vehicle.

88. (New) A method according to claim 54 wherein said display screen comprises a plastic screen.

89. (New) A method according to claim 54 wherein video images are displayed on an upper portion of said display screen so as to be easily seen by the driver of said vehicle.

90. (New) A method according to claim 54 wherein said display screen is easily interchanged with a further screen.
91. (New) A method according to claim 54 wherein data is displayed on said display screen that is comprised of labels and other data relating to the function of at least one of said plurality of physical control details.
92. (New) A method according to claim 54 wherein a video image is provided on the display screen which can be touched at a desired location to acknowledge or confirm data presented.
93. (New) A method according to claim 54 wherein said computer is further used to process data from other electro-optical systems within the vehicle.
94. (New) A method according to claim 54 wherein data to be acted on by touch is projected on said display screen under control of said computer.
95. (New) A method according to claim 54 wherein at least a portion of said display screen is non-flat.
96. (New) A method according to claim 54 further comprising using touch sensing means for sensing xy touch position of a finger of a user on at least a portion of said display screen.
97. (New) A method according to claim 54 wherein said electro-optical sensing system is used to also sense touch position on said display screen.
98. (New) A method according to claim 54 wherein at least one of said physical control details comprises a switch.

99. (New) A method according to claim 54 wherein said display screen comprises part of a display system capable of providing, on said display screen, different reconfigurable images associated with the plurality of physical control details.

100. (New) A method according to claim 54 wherein said images include at least two of an audio image, a climate control image, and a navigational guidance image.